



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,461	11/09/2001	Richard T. Sahara	1866.2005-000 (D16857)	4812

7590 11/24/2003
David J. Thibodeau, Jr., Esq.
HAMILTON, BROOK, SMITH & REYNOLDS, P.C.
530 Virginia Road
P.O. Box 9133
Concord, MA 01742-9133

EXAMINER

NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
----------	--------------

2828

DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,461

Applicant(s)

SAHARA ET AL.

Examiner

Dung (Michael) T Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.


PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 1, 11, and 20, it is not clear as how the single mode output light signal is generated at a data rate greater than 622 Mb/sec in isolator free operation. Further, the claims fail to recite the structural relationship between the active layer and the grating. Furthermore, the claims fail to define what and where the laser cavity is positioned within the integrated semiconductor device.

The remaining claims are dependent on the above rejected claims and therefore are also rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-4, 6, 10-15, 20-24, 26, and 30-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Huang et al. (Isolator-free 2.5-Gb/s 80 km transmission by directly modulated $\lambda/8$

Art Unit: 2828

phase shifted DFB-LDs under negative feedback effect of mirror loss, IEEE Photonics Technology letters, Vol. 13, No. 3, March 2001).

With respect to claims 1, 3-4, 6, 10-12, 14-15, 20-21, 23-24, 26, and 30-33, Huang show in Fig. 3 a semiconductor DFB laser having an active layer comprising a multiple quantum well structure and a current induced grating producing a single mode output light signal 1.5 μm at a data rate about 2.5 Mb/s, wherein the grating has a coupling strength product greater than 3 (paragraph III, first column, line 6); an optical fiber for receiving the output light and optics for isolator free coupling of the output light into the optical fiber (paragraph III, second column, lines 12-13).

With respect to claims 2, 13, and 22, Huang show in Fig.3 a complex coupled grating.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7-9, 16-19, 25, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (Isolator-free 2.5-Gb/s 80 km transmission by directly modulated $\lambda/8$ phase shifted DFB-LDs under negative feedback effect of mirror loss, IEEE Photonics Technology letters, Vol. 13, No. 3, March 2001) in view of Welch et al. (US2003/0095737).

With respect to claims 5, 16, and 25, Huang disclose all limitations of the claims except for the quantum well structure is AlInGaAs. Welch teach the AlInGaAs quantum well structure (para. 0157, 1.17-19). For the benefit of a multiple quantum well structure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Huang the AlInGaAs quantum well structure as taught by Welch.

With respect to claims 7-8, 17-18, and 27-28, Welch disclose an electro-absorption modulator 14 (Fig.4).

With respect to claims 9, 19, and 29, Welch disclose a Mach Zehnder modulator (para.0035).

Citation of The Pertinent References

The following US patents are being made of record, even though they were not relied upon in this Office action, for being similar in subject matter, and may be relied upon in any future Office Actions: 6400744 and 6628864.

Communication Information

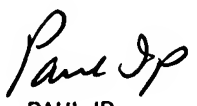
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (703) 305-7159. The examiner can normally be reached on 8:30 - 17:00.

Art Unit: 2828

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Nguyen (Michael) Dung


PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800